

الف)	ب)	۱
ج)	د)	۱
الف) $x^2 - 5x + 4 > 0 \rightarrow (x-1)(x-4)$	$\frac{1}{x-1} - \frac{1}{x-4} > 0 \rightarrow (-\infty, 1) \cup (4, +\infty)$	۲
ب) $x^2 - 4x + 4 < 0 \rightarrow (x-1)(x-4)$	$\frac{1}{x-1} - \frac{1}{x-4} < 0 \rightarrow (1, 4)$	
ج) $x^2 + 4x + 4 > 0 \rightarrow (x+1)(x+4)$	$\frac{-1}{x+1} - \frac{1}{x+4} > 0 \rightarrow (-\infty, -4] \cup [-1, +\infty)$	
د) $x^2 - 7x + 4 < 0 \rightarrow (x-1)(x-4)$	$\frac{1}{x-1} - \frac{1}{x-4} < 0 \rightarrow [1, 4]$	۳
الف) $\frac{x^2 - 3x + 2}{x-1} < 0 \rightarrow \frac{(x-1)(x-2)}{(x-1)(x-1)} < 0 \rightarrow \frac{1}{x-1} < 0 \rightarrow (-\infty, 1) \cup (2, +\infty)$		
ب) $\frac{x^2 - 1}{x^2 - 4x + 4} > 0 \rightarrow \frac{(x-1)(x+1)}{(x-1)(x-2)} > 0 \rightarrow \frac{x+1}{x-2} > 0 \rightarrow (-\infty, -1] \cup (2, +\infty)$		۴
الف) $y = \sqrt{\frac{x^3 - 1}{x^3 - x}} \Rightarrow \frac{x^3 - 1}{x^3 - x} > 0 \rightarrow \frac{(x-1)(x^2 + x + 1)}{x(x-1)(x+1)} > 0 \rightarrow \frac{1}{x(x+1)} > 0 \rightarrow (-\infty, -1) \cup (0, 1) \cup (1, +\infty)$		
ب) $y = \sqrt{\frac{x^2 - 14}{x^2 - 5x + 6}} \Rightarrow \frac{x^2 - 14}{x^2 - 5x + 6} > 0 \rightarrow \frac{(x-\sqrt{14})(x+\sqrt{14})}{(x-2)(x-3)} > 0 \rightarrow (-\infty, -\sqrt{14}] \cup (2, \sqrt{14}) \cup (3, +\infty)$		۵
الف) $y = \sqrt{2 - \sqrt{2 - x}} \Rightarrow 2 - \sqrt{2 - x} > 0 \rightarrow \sqrt{2 - x} < 2 \rightarrow 2 - x < 4 \rightarrow x > -2$		
ب) $y = \sqrt{2 - \sqrt{x - 2}} \Rightarrow x - 2 > 0 \rightarrow x > 2$		
ج) $y = \sqrt{x - 2} \Rightarrow \sqrt{x - 2} < 3 \rightarrow x - 2 < 9 \rightarrow x < 11$		

الف) $y, \sqrt{\varepsilon - 2 x ^2} \rightarrow \varepsilon - 2 x ^2 > 0 \rightarrow \varepsilon > 2 x ^2 \rightarrow x < \sqrt{\frac{\varepsilon}{2}}, \varepsilon > 0 \rightarrow D_f = [-\sqrt{\frac{\varepsilon}{2}}, \sqrt{\frac{\varepsilon}{2}}]$.	
ب) $y, \sqrt{3 x - 9} \rightarrow 3 x - 9 > 0 \rightarrow 3 x > 9 \rightarrow x > 3 \rightarrow x > 3, x < -3$ $D_f = (-\infty, -3] \cup [3, +\infty)$.	٤
الف) $y, \sqrt{\frac{ x +1}{ x -3}} \rightarrow x -3 \neq 0 \rightarrow x \neq 3 \rightarrow x \neq \pm 3$ $D_f = \mathbb{R} - \{3, -3\}$.	٧
ب) $y, \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-3}} \rightarrow x > 0$ $\sqrt{x}-3 \neq 0 \rightarrow \sqrt{x} \neq 3 \rightarrow x \neq 9 \rightarrow x > 0, x \neq 9$ $D_f = [0, 9) \cup (9, +\infty)$.	٧
الف) $y, \frac{\sin x}{x \cos x - 1} \rightarrow x \cos x - 1 \neq 0 \rightarrow \cos x \neq \frac{1}{x} \rightarrow D_f = \mathbb{R} - \{x \mid x \cos x = 1\}$ ب) $y, \frac{\cos x + 1}{x \sin x + 1} \rightarrow x \sin x + 1 \neq 0 \rightarrow \sin x \neq -\frac{1}{x} \rightarrow D_f = \mathbb{R} - \{x \mid x \sin x = -1\}$ ج) $y, \frac{\tan x + 1}{\cot x - 1} \rightarrow \cos x \neq 0$ $D_f = \mathbb{R} - \{x \mid \cos x = 0\}$ د) $y, \frac{\sin x + 1}{x \sin^2 x - 3} \rightarrow x \sin^2 x - 3 \neq 0$ $\sin^2 x \neq \frac{3}{x} \rightarrow \sin x \neq \pm \sqrt{\frac{3}{x}}$ $D_f = \mathbb{R} - \{x \mid \sin x = \pm \sqrt{\frac{3}{x}}\}$.	٨
$y = \frac{1}{\sqrt{x x-1 - \frac{1}{x}}} \rightarrow x x-1 - \frac{1}{x} > 0 \rightarrow x x-1 > \frac{1}{x} \rightarrow x-1 > \frac{1}{x^2}$ $x-1 > \frac{1}{x^2} \rightarrow x > \frac{1}{x^2} + 1 \rightarrow x > \frac{1}{x^2}$ $x-1 < -\frac{1}{x^2} \rightarrow x < -\frac{1}{x^2} + 1 \rightarrow x < \frac{1}{x^2}$ $D_f = (-\infty, \frac{1}{x^2}) \cup (\frac{1}{x^2}, +\infty)$.	٩
الف) $y, \sqrt{\varepsilon - 2 x } \rightarrow \varepsilon - 2 x > 0 \rightarrow \varepsilon > 2 x \rightarrow -\frac{\varepsilon}{2} < x < \frac{\varepsilon}{2}$ $D_f = [-\frac{\varepsilon}{2}, \frac{\varepsilon}{2}]$ ب) $y, \sqrt{\frac{ x }{ x }}$ $D_f = \mathbb{R} - \{0\}$ $ x \neq 0 \rightarrow x \neq 0$	١٠